

Volume 26

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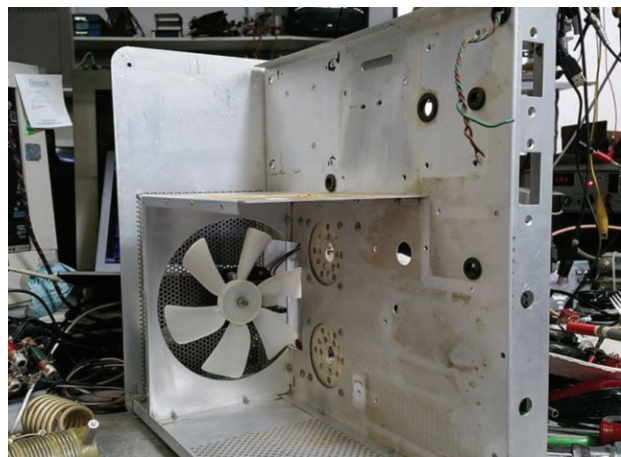
Counterpoise Editor - Sue Robins AF6LJ

Building A 6 Meter Remotely Controlled Amplifier

By Sue Robins AF6LJ, pictures by Pat Bunsold WA6MHZ

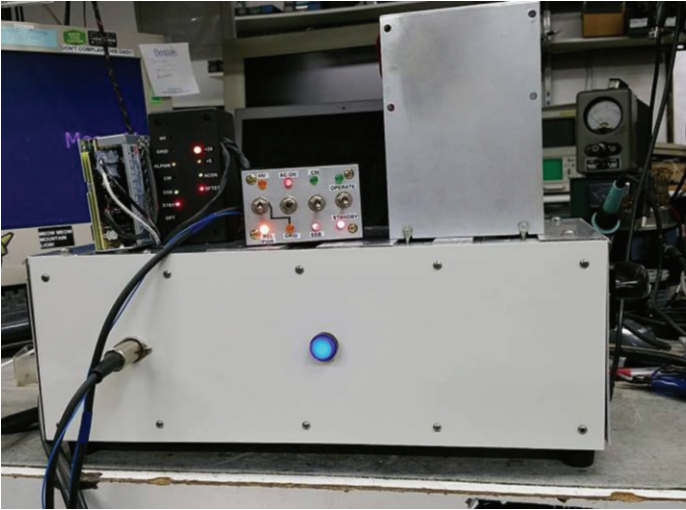
We had a great presentation at our August meeting. Pat WA6MHZ gave a presentation on his modified SB-221. The project began as an 80-15 meter 2KW DC Input Heathkit linear amplifier. The Heathkit SB-220 and SB-221 are the most modified linear amplifiers in all of ham radio, not because there is anything wrong with them, but because tens of thousands of them were sold throughout their combined production life. The SB-220 / 221 was built to a cost as many Heathkits were, The Hams as Heath also limited themselves to a desk top design that would include an internal power supply. The amplifier will deliver 1200-1300 watts with a hundred watts drive and at the time it was released it was introduced in late 1969 was the best value in a legal limit amplifier priced at \$350.00 in kit form. There is a large story to tell about the Heath SB-220 / 221 amplifiers, I'll save it for a future article, for now this will suffice for an introduction into the the Amp Pat's project was born out of.

Our story begins back in April of this year with Pat purchasing a used SB-221 on our way back from the TRW Swap Meet. The idea of converting an SB-220 type amplifier to six meters had been a topic of discussion between the two of us for some time. The day came and the SB-221 seen below was secured.



There was considerable work involved beginning with removing almost everything from the chassis. Power supply parts were set aside and an external power supply was built from those parts. The power supply contained the beginnings of a remote control circuit. The amplifier would be located on the top shelf of the shack so it was necessary to remove the power supply, and provide a means of remotely controlling the amplifier's basic functions. A chassis was constructed for the power supply with reinforcement for heavy power transformer. The amplifier had been recently re-capped so filter caps were good and replacement was not necessary.





A chassis was constructed from pieces of aluminum angle stock, bar stock and sheets to form the sides. The design of the power supply evolved as construction proceeded. The power supply was completed and set aside.

Work on the RF deck was next, the amplifier was to have CW Break-in capabilities, and after some discussion on QRZ.com Forums the W7RY SB-220 relay modification board was decided on. The board drives one vacuum relay and a reed relay to accomplish the RF switching, and electronically controls tube bias switching for the SB-221 effectively. Pat settled on using two vacuum relays and a slight modification to the W7RY QSK board was required. There was a long list of modifications needed to convert this amplifier to six meters, it is for all intents a from scratch build except most all the sheet metal is done for you. The first attempt brought mixed results and some smoke. A different input circuit was tried and that helped. The output circuit remained problematic. An expert on the subject of converting HF amps to six meters stepped forward. Lou W1QJ who has a company called King Conversions <http://www.groking.com/> offered to provide Pat with the information to build a tank coil that was already optimized for the SB-220 / 221. The coil was fabricated and the parasitic suppressors supplied by Lou were installed. The amplifier came to life. On less than 100 watts drive the amplifier delivered nearly 1400 watts to a dummy load. A lunar solid state amp was modified to allow the SB-226 to take control of keying the Lunar amp. The FT-736R VHF / UHF radio will drive the pair to nearly legal power, good work Pat.



ARCEC Repeater Frequencies

| 2 Meter Repeater | 220 MHZ Repeater | 440 MHZ Repeater |
|------------------|------------------|------------------|
| TX 146.475 | TX 222.480 | TX 440.900 |
| RX 147.420 | RX 224.080 | RX 445.900 |
| Offset .945 | Offset 1.6 | Offset 5.00 |
| PL 107.2 | PL 107.2 | PL 107.2 |



HAM RADIO OUTLET

San Diego Hamboree & Swapmeet!

Saturday August 26, 2017

Prizes -
Giveaways -
Clubs -
Friends - Fun!

ICOM D-STAR PIZZA PARTY

When: Friday, August 25, 2017
Where: Giovanni's Restaurant
Time: 6 p.m. \$9.50 + pop for most guests

BIOENNO POWER

Icom will be sponsoring a "No Host Pizza Party" at the Giovanni's Restaurant at 9353 Clairemont Mesa Blvd on Friday August 25, 2017, at 6:30 pm. Cost for the Pizza Party is \$9.50. An ID-4100 will be given away on Saturday at the Hamboree and only those who paid to attend the Pizza Party will qualify for the ID-4100 drawing. The San Diego HRO Hamboree & Swap Meet will be held on Saturday August 26, 2017.

Spaces for the swap meet are limited (25) and must be reserved in advance of the event. Seller space reservations can be made at HRO San Diego or by calling 858-560-4900.

Next Month's Meeting

To be announced see our website for details.

Club Picnic

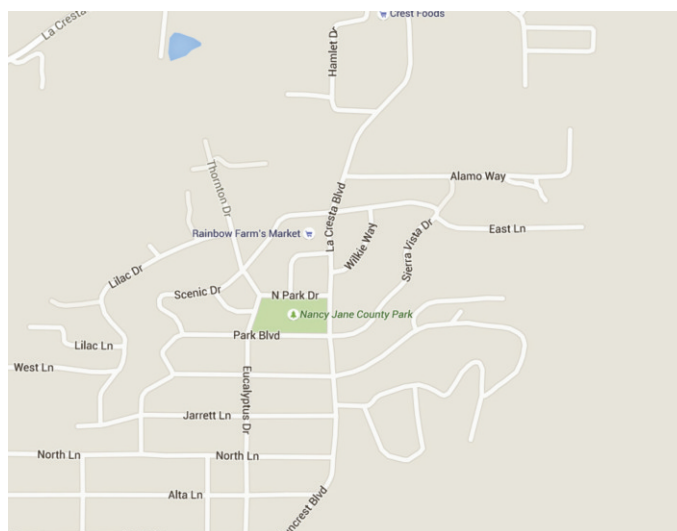
September 16th Nancy Jane Park pot luck style lunch club will supply burgers etc.

Bring your favorite picnic dish.

The picnic starts at 11:00

Enjoy an afternoon in the cool mountain air.

Hope to see you there



San Diego Hamfest 2017

DATE: October 7, 2017

- All Local Ham Clubs Welcome
- Button Hole "QSO's" with other Hams
- Visit Ham Club Booths
- ARRL Forum
- Ham Radio Vendors
- Door Prizes
- VE Testing
- T-Hunt
- Speakers
- "FREE" Antenna Friendly Parking

Time of the Event: 7 AM-3 PM

"Old Radio Trade Show" Starts at 6 AM

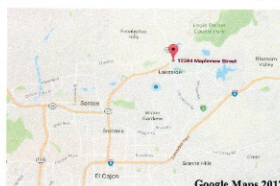
Old Radio Trade Show in parking lot!
Set-up a table and sell your unwanted Old Radio Gear
ONLY \$5.00 a space!

Hamfest Cost: \$5.00

Trading Post: "Consignment Booth"



MAP



Sponsored by: Lakeside Amateur Radio Club
Visit us on the Web at
WWW.LakesideARC.org

Like Us on Facebook!



Location
Lakeside Rodeo Grounds
12584 Maplevue St., Lakeside CA

You are cordially invited to attend the
3rd Annual San Diego Hamfest 2017.

We plan on starting out the day with an

Old Radio Trade Show, Vendors,

Speaker Forums, and VE Testing.

So come on out and let's Ham it Up!

For the most up to date information
Please visit: WWW.SDhamfest.org

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Our Tower Trailer Needs A New Home

The current storage location for the club's antenna tower will not be available very soon. The club is looking for a volunteer willing to store the tower trailer. The new location must be secure, and 24 hour access is highly desired. If anyone wants to volunteer to store the trailer, or, has any suggestions on where to store the antenna trailer, please contact any officer or board member.

Useful Resources



Trojan
BATTERY COMPANY

LifeLine
The heart of your system

AC Delco

Deka
SPORTS POWER

ODYSSEY
BATTERY

OPTIMA
BATTERIES

New Battery Supply & Battery Recycling for SD

New Marine Battery-Heavy Equipment Battery-Tuck/Auto

619Battery.com

Shop 619-448-5323
Mobile 619-315-5604 Call/Text

1985 Friendship Dr B
El Cajon 92020

Jeff Schwen

Swap Meet Listings

The Amateur Radio Club of El Cajon has a Swap Meet listing page on our website and here in Counterpoise, Have something you want to buy, sell, or trade list it with us. See <http://wa6bgs.us/swapmeetlegal.html> for more listings and posting guidelines. This is a free service to our members.

Club Shirts & Jackets

We have green, pocketed 2013 Field Day club shirts available in sizes S (2), M (1), and L (8) for \$10 each. Our standard Club Shirts have no pocket and are in sizes M (10), L (4), 2XL (7), 3XL (4), 4XL (5) for \$10 each. Sizes are limited to stock on hand.

Lined Windbreaker Jackets are also available in sizes L (1) and XL (7) for \$24 each. These have side pockets with snap closure.

Membership Badges & Pins

All members of the Amateur Radio Club of El Cajon who might wish to obtain a membership badge can contact Dell Awards and place an order with them. They are our current preferred source for these badges, and have our logo and design on file and ready to create a custom badge for members. Current price is \$7.50 per badge and they have indicated that there is normally a 3 business day turnaround time. These are quality badges made by a long established company, so place yours on order soon. They can be reached at the below address and phone number, and be sure to mention you saw this blurb in the Counterpoise newsletter too.

Dell Awards
7949 Broadway
Lemon Grove, CA 91945
(619) 469-2100
Hours: Mon-Fri 9:30am-5:30pm
Sat 10am-1pm
Sun - Closed

Club Pins Now Available:

They have arrived! A limited number of club pins are now here and can be obtained from our Treasurer at most club functions. These are 1" diameter pins with a rubber clutch pin on rear. You can now show the world your support of the Amateur Radio Club of El Cajon, and for the small cost of \$3.00 each too. Get them while they are available.





The **AMATEUR RADIO CLUB OF EL CAJON**^{Inc.}
WA6BGS

Post Office Box Fifty, El Cajon California 92022

Founded 1960 ~ Incorporated 1976

Please fill out this form and then see options at bottom for submitting to the club

Date of application: ___ / ___ / ___

Amount Paid: \$ _____ Cash Check Check # _____

Membership Type: Individual (\$20/year) Family* (\$35/year)

Membership Status: New Renewal Returning Member

Call Sign First Name _____ Last Name _____

If a previous member, what was your WAMO number?

ARRL Member: Yes No

License Class: Technician General Extra Other

Email Address (required) _____

Phone Number (optional) _____

**Use another sheet of paper to add Family members and please include the following information:*

First Name, Last Name, Call Sign (if any), License Class, Wamo Number (if any), & Email Address.

Submitting this form:

To submit this form, you can mail it to:

**Amateur Radio Club of El Cajon
P.O. Box 50
El Cajon, CA 92022**

-OR-

Bring it to the next club meeting on the second Thursday of each month. You can find the date and location by getting online at www.wa6bgs.us which is the club website. Check it out for the most current information regarding the club.

Cash Payments - Get a receipt from the Club Treasurer. Please make all checks payable to AMATEUR RADIO CLUB of EL CAJON, Incorporated. Receipts for payments by check will be sent by email or regular mail by the Club Treasurer.

Members with an FCC Call Sign are full members with voting privileges. Members without an FCC Call Sign are Associate members without voting privileges.

YOUR DUES ARE TAX DEDUCTIBLE: Amateur Radio Club of El Cajon, Inc. Is a 501 C 7 Corporation. Donations are NOT tax deductible.

Email address and phone number are to allow club officers to contact members regarding club business and information of interest.